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- [ENVIRONMENTAL CONTAMINANTS](#)
- [FEDERAL ACTIVITIES](#)
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- [CELL TOWER GUIDANCE IN AZ](#)
- [IMAGE LIBRARY](#)
- [LINKS](#)

BIOLOGICAL OPINIONS

Title	Location	Action Agency	Listed Species Affected	D O
Construction of a Bridge at Palo Parado between Interstate 19 and Pendleton Road (22410-2011-F-0138)	Santa Cruz County, Arizona	Army Corps of Engineers	Gila topminnow	A 20
Interstate 40 Widening Project (22410-2011-F-0020)	Coconino County, Arizona	Federal Highway Administration	Mexican spotted owl	M 20
Final Biological Opinion on the Clean Water Act 404 Permit Associated with Proposed Restoration of the Gila River at Apache Grove (22410-2010-F-0487)	Greenlee County, Arizona	Army Corps of Engineers	southwestern willow flycatcher, razorback sucker, and Chiricahua leopard frog	M 20
Revision to the Final Biological Opinion on the Virgin River Gorge (Gorge) Rotenone Treatment between the Stateline Fish Barrier in Washington County, Utah, and the Virgin River Gorge Fish Barrier, Mohave County, Arizona and Washington County, Utah (22410-2010-F-0567 R1)	Mohave County, Arizona and Washington County, Utah	Fish and Wildlife Service	woundfin and Virgin River chub	M 20
Biological Opinion on the Control Road Bridge Replacement (22410-2010-F-0587)	Gila County, Arizona	Federal Highway Administration	Chiricahua leopard frog	M 20
Biological Opinion for the Reinitiation of Section 7 Consultation for Buenos Aires National Wildlife Refuge Fire Management Plan 2005-2008 for the 2011 Fire Season (22410-2005-F-0243 R3)	Pima County, Arizona	US Fish and Wildlife Service	Pima pineapple cactus, masked bobwhite quail, Chiricahua leopard frog, and Gila topminnow	F 1,
Biological Opinion on the proposed Wenima Wildlife area Stream restoration Project (22410-2010-F-0584)	Apache County, Arizona	Army Corps of Engineers	Little Colorado spinedace	J 3
Biological Opinion on Mittry and Quigley Hazardous Fuel Reduction Project (22410-2011-F-0025)	Yuma County, Arizona	Bureau of Land Management	Yuma clapper rail	J 20
Biological Opinion for the Proposed Greenwood Community Grazing Allotment Permit Renewal (22410-2010-F-0442)	Mohave County, Arizona	Bureau of Land Management	southwestern willow flycatcher	D 11

Southeastern Arizona (02-21-96-F-0160)			topminnow, Loach minnow, Razorback sucker, Southwestern willow flycatcher, Cactus ferruginous pygmy-owl, Lesser long-nosed bat, Jaguar and New Mexico ridgenose rattlesnake	
Biological Opinion for the Proposed Construction of a Fish Barrier in Redrock Canyon (22410-2008-F-0029 and 22410-1990-F-0119a)	Santa Cruz County, Arizona	Coronado National Forest	Gila topminnow, Gila Chub, Chiricahua leopard frog, and Sonoran tiger salamander	Jt 20
Island Trail Rockfall Removal and Repair Biological Opinion (22410-2008-F-0118)	Coconino County, Arizona	National Park Service	Mexican spotted owl	M 20
Biological Opinion for the Proposed Arvada Land Sale (22410-2007-F-0223)	Mohave County, Arizona	Bureau of Land Management	Mojave desert tortoise	M 20
Biological Opinion for the proposed US 60 Highway Improvements near Pinto Valley Road (22410-2007-F-0148)	Pinal and Gila counties, Arizona	Federal Highway Administration	Arizona hedgehog cactus	M 20
Reinitiated Biological Opinion on Transportation and Delivery of Central Arizona Project Water to the Gila River Basin in Arizona and New Mexico and its Potential to Introduce and Spread Nonindigenous Aquatic Species (02-21-90-F-119, 02-21-91-F-406, and 22410-2007-F-0081)	Arizona	Bureau of Reclamation	loach minnow, spikedace, Gila topminnow, razorback sucker, Gila chub, and Chiricahua leopard frog	M 20
Biological Opinion on the Ongoing and Long-term Grazing on the Clanton/Cloverdale, Geronimo, Guadalupe, Maverick, Robertson, and Walnut Allotments in the Peloncillo Mountains, Douglas Ranger District (22410-2008-F-0053)	Cochise, Graham, and Greenlee counties, Arizona	Coronado National Forest	lesser long-nosed bat, Mexican long-nosed bat, New Mexico ridgenosed rattlesnake, and the Chiricahua leopard frog	M 20
Biological Opinion for the August Fire Suppression Rehabilitation Project on the Prescott National Forest (22410-2008-F-0229)	Yavapai County, Arizona	Prescott National Forest	Mexican spotted owl	M 20
Updated Intra-Service Biological Opinion Regarding the Proposed Issuance of an Incidental Permit and Approval of a Safe Harbor Agreement with the City of Tempe for the Rio Salado Project, Maricopa County, Arizona	Maricopa County, Arizona	US Fish and Wildlife Service	Yuma clapper rail, southwestern willow flycatcher, and bald eagle	A 20
Biological Opinion on the Chitty Creek Restoration Project (22410-04-F-0006-R001)	Greenlee and Apache counties, Arizona	Apache-Sitgreaves National Forest	Mexican spotted owl and Gila chub	A 20
Intra-Service Biological and Conference Opinion - Issuance of a Section	Maricopa and Yavapai counties, Arizona	US Fish and Wildlife Service	southwestern willow flycatcher, bald eagle, spikedace, loach	A 20

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In Reply Refer To:

AESO/SE
22410-04-F-0006-R001

April 2, 2008

Mr. Deryl Jevons
Forest Supervisor
Apache Sitgreaves National Forests
P.O. Box 640
Springerville, Arizona 85938-0640

RE: Chitty Creek Restoration Project

Dear Mr. Jevons:

Thank you for your request for reinitiation of formal consultation with the U.S. Fish and Wildlife Service (FWS) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). Your request was dated November 20, 2007, and received by us on November 23, 2007. At issue are impacts that may result from the proposed Chitty Creek Restoration Project located in Greenlee and Apache counties, Arizona. Your biological assessment and evaluation (BAE) concluded that the proposed project “may affect, and is likely to adversely affect” the Mexican spotted owl (*Strix occidentalis lucida*) and its critical habitat and Gila chub (*Gila intermedia*) critical habitat. Based on the changes in the proposed action of the BAE we concluded take in the form of harassment was likely to occur for MSO associated with Blue Vista PAC; however, the amount of take changed from four MSO, in the original BO, to one MSO. The amount of take is not cumulative since the actions proposed in the original BO did not occur. We provided our conclusion and reasons for change in the following discussion of this BO.

You determined that the project “may affect, but is not likely to adversely affect” the Chiricahua leopard frog (*Rana chiricahuensis*), Gila chub, and the Gila trout (*Oncorhynchus gilae*). You also stated that the proposed action “is not likely to jeopardize” the continued existence of the Mexican gray wolf (*Canis lupus baileyi*). We concur with your determinations for the Chiricahua leopard frog, Gila chub, and Mexican gray wolf, and our reasoning is provided in Appendix A. On January 10, 2008, we received an email from your office requesting the removal of Gila trout from consideration based on the following reasons: 1) Gila trout are not known to occur within the action area; and 2) reintroduction of Gila trout within the project area will not occur within the 10-year Chitty Creek Restoration project time frame due to unsuitable habitat conditions that currently exist in Chitty Creek. We concur with your assessment and subsequently removed Gila trout from consideration.

This BO is based on information provided in the November 20, 2007, BAE, telephone conversations and emails with my staff and wildlife biologist Lance Brown of your staff, and other sources of information. Literature cited in this BO is not a complete bibliography of all literature available on the species of concern, prescribed fire, and thinning and their effects, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

TABLE OF CONTENTS

CONSULTATION HISTORY 4
DESCRIPTION OF THE PROPOSED ACTION 4
STATUS OF THE SPECIES 5
 ENVIRONMENTAL BASELINE..... 7
 A. Status of the species and critical habitat within the action area..... 7
 B. Factors affecting species environment and critical habitat within the action area 8
EFFECTS OF THE ACTION..... 9
 CUMULATIVE EFFECTS 12
CONCLUSION..... 12
INCIDENTAL TAKE STATEMENT 13
AMOUNT OR EXTENT OF TAKE 14
EFFECT OF THE TAKE..... 14
REASONABLE AND PRUDENT MEASURES AND TERMS AND CONDITIONS..... 14
CONSERVATION RECOMMENDATIONS..... 15
REINITIATION NOTICE 16
LITERATURE CITED 17
APPENDIX A..... 18
 Concurrence 18
LITERATURE CITED 19

CONSULTATION HISTORY

- May 4, 2006: Final biological opinion (BO) sent to the Apache-Sitgreaves National Forests (ASNF).
- July 2, 2007: We received a June 22, 2007, letter from the ASNF requesting reinitiation of the Chitty Creek Restoration Project. The reinitiation was based on the addition of a new prescribed burn perimeter to include the Strayhorse Block.
- July 2, 2007: We received a telephone call from the ASNF notifying the FWS of the Chitty Wildfire and subsequent emergency suppression actions within the vicinity of the Chitty Restoration Project.
- November 23, 2007: We received a November 20, 2007, letter from the ASNF requesting reinitiation of the Chitty Restoration Project.
- March 19, 2008: Draft BO sent to ASNF.
- March 27, 2008: We received an email from the ASNF requesting that we finalize the BO.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The proposed action for the original BO, dated May 4, 2006, described the Clifton Ranger District's forest fuels management project that included prescribed fire and noncommercial understory thinning within the Chitty Creek Restoration Project area located within the ASNF approximately 30 miles south of Alpine in Greenlee County, Arizona. Due to unusually late monsoon activities in 2006, the only portions of the project completed were the thinning treatments in blocks A and E. On July 2, 2007, we received a reinitiation letter and BAE from the Clifton Ranger District outlining the addition of the Strayhorse burn block F to the Chitty Creek Restoration Project. The BAE analyzed the inclusion of the Strayhorse burn block and associated effects to listed species documented in the original BO. Prior to FWS response to the ASNFs' request, a lightning strike occurred (June 30, 2007) within the perimeter of the Chitty Creek Restoration Project. The Chitty Wildfire and associated suppression actions burned 6,999 acres within the action area of the Chitty Creek Restoration Project. The purpose of this reinitiation is to include the Strayhorse burn block F, analyze the Forests' revised Chitty Creek Restoration Project treatment schedule, and update the baseline for listed species within the action area.

The modified action area includes the Stayhorse Burn block F which will increase the size of the 14,000-acre Chitty Creek Restoration Project by 1,046 acres. The inclusion of burn block F will increase the overall project acreage; however, since the Chitty Wildfire burned a portion of block F, only 300 acres require further treatment. The habitat within burn block F is pine-oak. Prescriptions for block F are ignition by hand or aerial sphere dispenser (helicopter) with burning

projected in the fall. The timing and/or season for burns will not change and the fire return intervals will not be shorter than the three years specified in the 2007 BAE. The life of this project is 10 years.

After the Chitty Wildfire and suppression actions occurred, the ASNF evaluated the impacts to habitat and listed species within the action area and decided to amend the original proposed action and treatment schedule. Field reviews and aerial surveys of the Chitty Wildfire burn area revealed that there are a great deal of unburned areas within the prescribed burn perimeter; therefore, in order to meet the Chitty Ecosystem Restoration Project objectives the ASNF amended the proposed action as follows: 1) ignite the remainder of the pine in all blocks except Block B; 2) designate a 1,332-acre no-ignition area along Chitty Canyon in Blocks A, C, and D (at a minimum for the first entry); 3) burn the remaining hand piles along Forest Service 54 Road; 4) burn the mountain shrub/brush and pinion/juniper portions of blocks C and D; and 5) remove Block B (which includes Blue Vista PAC) from the implementation schedule. Specific prescriptions for each burn block can be found in the amended BAE. Best Management Practice's, conservation measures, and terms and conditions (see the May 4, 2006, BO) will be applied to all treatments within the project area (including burn block F).

STATUS OF THE SPECIES

Mexican spotted owl

Changes to the MSO status are reflected in the following two paragraphs. All additional information on the status of the species is documented in the original BO (May 4, 2006).

Since the owl was listed, we have completed or have in draft form a total of 189 formal consultations for the MSO. These formal consultations have identified incidences of anticipated incidental take of MSO in 385 PACs. The form of this incidental take is almost entirely harm or harassment, rather than direct mortality. These consultations have primarily dealt with actions proposed by Forest Service Region 3. However, in addition to actions proposed by Forest Service Region 3, we have also reviewed the impacts of actions proposed by the Bureau of Indian Affairs, Department of Defense (including Air Force, Army, and Navy), Department of Energy, National Park Service, and Federal Highway Administration. These proposals have included timber sales, road construction, fire/ecosystem management projects (including prescribed natural and management ignited fires), livestock grazing, recreation activities, utility corridors, military and sightseeing overflights, and other activities. Only two of these projects (release of site-specific owl location information and existing forest plans) have resulted in a determination that the proposed action would likely jeopardize the continued existence of the MSO. The jeopardy opinion issued for existing Forest Plans on November 25, 1997, was rendered moot as a non-jeopardy/no adverse modification BO was issued the same day.

In 1996, we issued a BO on Forest Service Region 3's adoption of the Recovery Plan recommendations through an amendment to their Land and Resource Management Plans (LRMPs). In this non-jeopardy BO, we anticipated that approximately 151 PACs would be affected by activities that would result in incidental take of MSOs. In addition, on January 17, 2003, we completed a reinitiation of the 1996 Forest Plan Amendments BO, which anticipated the additional incidental take of five MSO PACs in Region 3 due to the rate of implementation of the grazing standards and guidelines, for a total of 156 PACs. Consultation on individual

actions under these BOs resulted in the harm and harassment of approximately 243 PACs on Region 3 NFS lands. Forest Service Region 3 reinitiated consultation on the LRMPs on April 8, 2004. On June 10, 2005, the FWS issued a revised BO on the amended LRMPs. We anticipated that while the Region 3 forests continue to operate under the existing LRMPs, take is reasonably certain to occur to an additional 10 percent of the known PACs on NFS lands. We expect that continued operation under the plans will result in harm to 49 PACs and harassment to another 49 PACs. To date, consultation on individual actions under the amended Forest Plans, as accounted for under the June 10, 2005, BO has resulted in the incidental take of owls associated with 19 PACs. Incidental take associated with Forest Service fire suppression actions, which was not included in the LRMP proposed action, has resulted in the incidental take of owls associated with 12 PACs.

Gila chub

We listed the Gila chub as endangered with critical habitat on November 2, 2005 (U.S. Fish and Wildlife Service 2005). Historically, Gila chub have been recorded from rivers, streams, and spring-fed tributaries throughout the Gila River basin in southwestern New Mexico, central and southeastern Arizona, and northern Sonora, Mexico (Miller and Lowe 1967, Rinne and Minckley 1970, Minckley 1973, Rinne 1976, DeMarais 1986, Propst 1999, and Weedman *et al.* 1996).

Decline of Gila chub is due to habitat loss from past and current dewatering of rivers, springs, and cienegas (e.g. from diversions, impoundments, and groundwater pumping), poor land management practices (e.g. excessive livestock grazing) resulting in erosion and arroyo formation, and the concomitant introduction of predacious and competing non-indigenous fish species (Miller 1961, Minckley 1985). Life history information can be found in the status review (Weedman *et al.* 1996), the final rule (U.S. Fish and Wildlife Service 2005), and references cited therein.

Today the Gila chub has been restricted to small, isolated populations scattered throughout its historical range. In Arizona, Gila chub occur in Indian, Larry, Little Sycamore, Silver, Spring, Sycamore, and Walker creeks and Lousy Canyon (Yavapai County), Sabino Canyon (Pima County), Sheehy Spring and O'Donnell Creek (Santa Cruz County), Cienega Creek (Pima and Santa Cruz counties), Redfield and Bass canyons (Graham and Cochise counties), Babocomari River (Santa Cruz and Cochise counties), the San Carlos and Blue rivers (Gila and Graham counties), Harden Cienega and Dix creeks, (Greenlee County), Eagle Creek (Graham and Greenlee counties), and Bonita Creek (Graham County) (Weedman *et al.* 1996).

Critical habitat includes approximately 160 miles of stream reaches in Arizona and New Mexico, organized into seven river units (U.S. Fish and Wildlife Service 2005). Based on our current knowledge of the life history, biology, and ecology of the species and the requirements of the habitat to sustain the essential life history functions of the species, we have determined that the Gila chub primary constituent elements (PCEs) are: (1) Perennial pools, areas of higher velocity between pools, and areas of shallow water among plants or eddies all found in headwaters, springs, and cienegas, generally of smaller tributaries; (2) Water temperatures for spawning ranging from 17 to 24 °C (62.6 to 75.2 °F), and seasonally appropriate temperatures for all life stages (varying from approximately 10 °C to 30 °C); (3) Water quality with reduced levels of contaminants, including excessive levels of sediments adverse to Gila chub health, and adequate levels of pH (e.g. ranging from 6.5 to 9.5), dissolved oxygen (e.g. ranging from 3.0 to 10.0) and

conductivity (e.g. 100 to 1000 mmhos); (4) Food base consisting of invertebrates (e.g. aquatic and terrestrial insects) and aquatic plants (e.g. diatoms and filamentous green algae); (5) Sufficient cover consisting of downed logs in the water channel, submerged aquatic vegetation, submerged large tree root wads, undercut banks with sufficient overhanging vegetation, large rocks and boulders with overhangs, a high degree of streambank stability, and a healthy, intact riparian vegetation community; (6) Habitat devoid of nonnative aquatic species detrimental to Gila chub or habitat in which detrimental nonnatives are kept at a level that allows Gila chub to continue to survive and reproduce; and (7) Streams that maintain a natural flow pattern including periodic flooding (U.S. Fish and Wildlife Service 2005).

This BO does not rely on the regulatory definition of “destruction or adverse modification” of critical habitat at 50 CFR 402.02. Instead, we have relied upon the statutory provisions of the Act to complete the following analysis with respect to critical habitat.

ENVIRONMENTAL BASELINE

The environmental baseline includes past and present impacts of all Federal, State, or private actions in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

DESCRIPTION OF ACTION AREA

The project area size increased 1,046 acres with the addition of Strayhorse Burn block F; however, the original action area acreage (232,359) remain the same.

A. STATUS OF THE SPECIES AND CRITICAL HABITAT WITHIN THE ACTION AREA

MSO and Critical Habitat

Forty-seven MSO PACs occur within the action area. One MSO PAC, the Blue Vista PAC, is located within the project area in Block B. This PAC was designated in 2002 and nesting was confirmed in 2005. In the upper reaches of the Blue Vista PAC, within 247 acres of mixed conifer habitat that received moderate fire intensity (from the Chitty Wildfire), a female MSO was observed on three separate post-fire informal monitoring surveys in August 2007. The other forty-six MSO PACs are located within the smoke dispersal portion of the action area.

Wildfire is probably the greatest threat to MSO within the action area. Several wildfires and resulting suppression activities have occurred within the action area affecting several MSO PACs and critical habitat. Since 2000, approximately 6,238 acres within 12 MSO PACs have burned (see Table 1). The Beaverhead and Chitty Wildfires have been added to the table. These two fires occurred after the original Chitty Restoration BO was finalized.

Table 1. MSO PACs within action area affected by wildfire.

Fire Name	PAC Name	Number of PAC acres burned
Blue Vista	Blue Vista	2.84
KP	Lower KP Creek	568.09
KP	Rim	695.24
Largo	Dutch	40.21
Thomas	Hannagan Creek	156.99
Thomas	Oliver	639.41
Thomas	Castle Rock	726.22
Thomas	Foote Creek	652.64
Thomas	East Castle	434.83
Three Forks	Redondo	408.70
Steeple and KP	Upper KP Creek	640.00
Steeple and KP	Butterfly	662.56
Beaverhead	Hannagan Creek	52.00
Chitty	Blue Vista	695.00

The Chitty Restoration Project lies entirely within the Upper Gila Mountain (UGM) RU-7 boundary, which comprises 863,344 acres. UGM RU-7 is essential to the conservation of the species and it currently possesses the primary constituent elements required for nesting, roosting, foraging, and dispersal. Since 2003, 50,580 acres have burned within this critical habitat unit.

Gila chub Critical Habitat

Gila chub critical habitat occurs within the action area and includes East Eagle and Eagle creeks (U.S. Fish and Wildlife Service 2005). Significant threats to critical habitat include groundwater pumping, fire, and grazing. Groundwater pumping occurs in Eagle Creek primarily for water to support mining operations at Morenci. This poses a threat to surface flows and dries up portions of the creek (U.S. Fish and Wildlife Service 2005). The Chitty Wildfire and associated suppression actions recently contributed to the present conditions within East Eagle and Eagle creeks. Approximately 1,648 acres within the watershed were impacted by fire and subsequent rainfall events lead to significant sediment and ash flow in East Eagle and Eagle creeks. The erosion of sediment and ash likely resulted in short-term adverse effects to PCE three related to water quality. Although improperly managed livestock grazing was listed as a significant threat to Gila chub critical habitat, to date no formal or informal consultations have occurred within the action area of this consultation. Grazing has occurred in the action area in the past and likely contributed to the status of watershed conditions; however, since the listing of the Gila chub and critical habitat (U.S. Fish and Wildlife Service 2005) these effects have not been analyzed.

B. FACTORS AFFECTING SPECIES ENVIRONMENT AND CRITICAL HABITAT WITHIN THE ACTION AREA

MSO and Critical Habitat

The following are changes documented within the action area since the conclusion of our May 4, 2006, BO. As mentioned previously, two additional PACs (Hannagan Creek and Blue Vista) have been subjected to wildfire and suppression activities in the action area. Approximately

5,078 acres of MSO critical habitat were affected as a result of the Beaverhead and Chitty Wildfires and associated suppression actions. The final BO for the Beaverhead fire concluded that suppression actions resulted in the take of the owls associated with the Hannagan Creek PAC but did not destroy or adversely modify designated critical habitat. The affects of suppression activities to MSO have not yet been determined for the Chitty Wildfire.

The aggregate impacts of the previous factors affecting the species and critical habitat as described in the May 4, 2006, BO, as well as effects from the Beaverhead and Chitty Wildfire all contribute to the present status of the MSO and critical habitat in the action area.

Gila Chub Critical Habitat

Past and ongoing factors affecting Gila chub critical habitat in the action area include ground disturbing recreation activities, grazing, and wildfire. The project area is managed by the Arizona Game and Fish Department as Game Management Unit 27. Hunting, fishing, and associated activities such as horseback riding, scouting, hiking, all terrain vehicle travel, and camping have and will continue to occur in the action area during the implementation of the action. Critical habitat within the action area is accessible by trails and primitive roadways. These on-going ground disturbing activities will continue to contribute to water quality conditions within East Eagle and Eagle creeks.

On-going and long-term grazing is scheduled within the action area and within the East Eagle and Eagle creek watersheds. Allotments within the treatment area will be rested from livestock grazing to ensure herbaceous recovery. Rest is expected to last at least two full growing seasons, but will be monitored by ASNF range management staff, who will make restocking recommendations.

As mentioned previously, the Chitty Wildfire and associated suppression actions burned approximately 1,648 acres within the watershed. Significant sediment and ash flow in East Eagle and Eagle creeks contributed to the current conditions of critical habitat within the action area. The affects of suppression activities to Gila chub critical habitat have not yet been determined for the Chitty Wildfire.

The aggregate effects of groundwater pumping, fire suppression, catastrophic wildfire, improperly managed livestock grazing, and ground disturbing recreational impacts all contribute to the present status of the Gila chub critical habitat in the action area. Some protection measures have been implemented to protect and improve watershed conditions.

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action, that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

MSO and Critical Habitat

Prescriptions for prescribed fire within the project area will be designed such that trees $\geq 16''$ diameter at breast height (dbh) make up $\geq 50\%$ of stand basal area; approximately 150 square feet of trees per acre basal area will be present within potential roosting habitat, at least 50% canopy cover will be retained; and at least 20 cubic yards of downed logs per acre will be maintained and/or recruited. Residual plant cover will be completely consumed or severely reduced within prescribed fire portions of the project area, reducing the risk of repeated fires, but also temporarily negatively affecting the primary constituent elements pertaining to maintenance of adequate prey species (*Peromyscus sp.*). Effects to adequate prey species are expected to be short-term, as fire promotes the growth of herbaceous plants benefiting MSO prey species.

Prescribed burning will not occur in Blue Vista MSO PAC (treatment Block B) and there are no anticipated direct effects to MSO or habitat within the PAC from the proposed actions.

Prescribed burning will occur in Blocks A, C, D, E, and F (Strayhorse). Prescribed burning in the mountain brush habitat will occur during the MSO breeding season (spring). Smoke will be the only cause of disturbance to MSO in the Blue Vista PAC from these treatments. Short-term disturbance from smoke effects in the mountain brush habitat will likely effect nesting, feeding, and roosting MSO within the breeding season. Prescribed burning in the pine and mixed conifer habitats will occur outside of the MSO breeding season (fall). Smoke and noise will be the only cause of disturbance to MSO in the Blue Vista PAC from these treatments. Short-term disturbance from smoke effects in the pine and mixed conifer habitats will likely affect wintering MSO through visual disturbance. Aerial helicopter operations and use of chainsaws will be restricted to a 1,330-foot border surrounding the Blue Vista PAC; this buffer will minimize the effects of noise disturbance. Therefore, aerial helicopter and chainsaw operations are not likely to adversely affect MSO(s) associated with Blue Vista PAC. Short-term disturbance from treatment activities (spring/fall) mentioned above will likely effect nesting, feeding, and roosting MSO and may result in increased metabolic rate by making the MSO more active. Increased activity can, in turn, deplete the animals energy reserves (Bowles 1995).

Smoke from spring/fall burns will likely disperse from the treatment areas to the other 46 PACs within the action area (effects from smoke for the Blue Vista PAC are mentioned above). According to the burning schedule found in the BAE, smoke from the proposed burning operations may occur seven out of the ten years (including spring and fall burns), potentially affecting all 46 MSO PACs within the project timeframe. Smoke-management requirements usually allow for ignition only when conditions allow for adequate smoke dispersal, including high transport winds providing vertical lift and a Haines index (of 4 or 5). When climatic conditions do not allow for fairly immediate smoke dispersal (e.g. an inversion exists), permission to burn is typically denied. As such, smoke is not expected to linger within PACs but rather will move out fairly quickly. Smoke may affect short-term foraging capabilities by limiting site distance of prey, and the inhalation of smoke by both adults and young may negatively affect breathing during the duration of the burn. Smoke effects during the breeding season are estimated to last up to eight hours after a burn event. Effects from smoke inversions will decrease as the distance to 46 PACs outside of the project area also increase. Short-term disturbance from smoke effects mentioned above will likely effect nesting, feeding, and roosting MSO within and outside of the breeding season.

Prescribed fire will result in at least a temporary loss or reduction of PCEs in MSO critical habitat in the treatment area. Prescribed fire is expected to consume large trees ≥ 12 inches dbh in pine-oak and mixed conifer forest, snags ≥ 12 inches dbh, high volumes of fallen trees and other woody debris, and residual plant cover while retaining adequate levels to maintain fruits and seeds, and allow plant regeneration. Burn patterns will create a mosaic of burned and unburned patches, increasing habitat heterogeneity and retaining elements of PCEs within portions of the treatment areas. Losses of snags, fallen logs, and woody debris are expected to be replaced, as prescribed fire often results in snag and woody debris recruitment. Losses of residual plant cover maintaining fruits and seeds are also expected to be short-term, as fire promotes the growth of herbaceous plants.

As stated previously, a female MSO was observed on three separate surveys (post-fire) within Blue Vista PAC. The return or survival of the male MSO associated with the PAC is unknown at this time. Within the Blue Vista PAC, 444 acres received crown and high-intensity fire and 247 acres received moderate intensity fire. The female MSO was observed (2007 informal surveys) on three separate occasions in the moderate intensity burn area. The status of critical habitat PCEs within the PAC is unknown at this time but is likely that the moderate-intensity burn acres (247 acres) within the PAC retained portions of critical habitat PCEs. Although the PAC acres will be protected from prescribed burning the long-term suitability of the PAC is not known. Re-establishment of a new nest/roost location within the project area or action area may occur as a result of decreased habitat conditions within the PAC. Therefore, the retention of critical habitat PCEs outside of the PAC is necessary to support foraging and or dispersal activities for MSO associated with the Blue Vista PAC. Prescribed fire in MSO restricted critical habitat outside of the PAC will have short-term adverse effects to critical habitat PCE's. A reduction or loss of PCE's surrounding the Blue Vista PAC will likely adversely affect the owls feeding, nesting, and roosting behavior and could lead to abandonment of the PAC.

Long-term beneficial effects from the Chitty Creek Restoration project include: reducing the potential for further stand replacing fire within the Blue Vista PAC; increasing the herbaceous growth to benefit prey populations as well as the potential to increase the number of larger diameter trees; and improving overall forest health.

Gila Chub Critical Habitat

Critical habitat streams likely to be adversely affected by the proposed action are Eagle Creek above Honeymoon campground and East Eagle Creek south of Burn Block B. The Forest concluded in the original BAE that Eagle Creek would not receive a visible amount of ash or sediment flow below Honeymoon campground, and that the East Eagle Creek drainage has a fair ability to absorb short-term chronic inputs of sediment from natural fire regimes and precipitation events. The previous assessments were based on pre-Chitty Wildfire watershed conditions. Stream habitat surveys have not been completed since the Chitty Wildfire. Because the condition of critical habitat PCEs are unknown at this time we can not be certain of the effect of additional inputs of sediment and ash from future prescribed burning within the watershed. PCE number three discusses the importance of water quality with reduced levels of contaminants, including excessive levels of sediments, adverse to Gila chub health, etc. Therefore, prescribed burning within the Chitty Creek Restoration Project is likely to result in adverse effects to PCE number three from short-term inputs of sediment and ash into Eagle and East Eagle Creeks.

Gila chub are known to occur below the Honeymoon campground. As stated previously, Eagle Creek below Honeymoon campground will not receive a visible amount of ash and sediment flow from the Chitty Restoration project; therefore, effects to chub are analyzed in the concurrence section of this BO (Appendix A).

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this BO. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

The majority of the land within the project boundaries is of Federal ownership. However, non-Federal actions that are likely to continue to occur in the project area include recreation resulting from increased tourism, and private land fuels reduction and development. Unregulated recreational activities occurring in the action area include camping, and OHV use. These activities periodically cause disturbance to MSO and Gila chub critical habitat and therefore contribute as cumulative effects to the proposed action. However, the majority of these actions will occur during the day and are considered to be of lesser concern to breeding/foraging MSO within the action area. Actions on private lands such as road improvements, livestock grazing, and other ground disturbing activities may result in habitat degradation effects to the MSO and subsequent downstream water quality effects to Gila chub critical habitat. However, the extent of the possible effects is unknown.

CONCLUSION

After reviewing the current status of the MSO and Gila chub, the environmental baseline for the action area, the effects of the proposed Chitty Creek Restoration Project and the cumulative effects, it is the FWS's BO that the Chitty Creek Restoration Project, as proposed, is not likely to jeopardize the continued existence of the MSO, and is not likely to destroy or adversely modify designated MSO and Gila chub critical habitat.

These conclusions are based on the following:

Mexican spotted owl

- Burn Block B, which includes the Blue Vista PAC, will not be treated.
- Helicopter and chainsaw use will occur outside of the Blue Vista PAC and no helicopter flights will be made within 1,330 feet of the PAC.
- Disturbance to PACs in the action area will be limited to short-term smoke disturbance.

Mexican spotted owl critical habitat

- Light- to moderate- intensity prescribed fire will retain the PCEs related to forest structure.
- Prescribed fire will result in a temporary short-term reduction in PCEs; however, a light- to moderate-intensity burn will retain PCEs related to a diversity of tree and plant species (including hardwoods) that will benefit prey species.
- Although a short-term reduction in snags, downed logs, and vegetative ground cover will adversely affect MSO critical habitat elements, the Chitty Restoration Project is likely to retain the conservation value of the primary constituent elements within the UGM RU-7.
- The overall health of the action area will be improved with this progressive restoration action.

Gila chub Critical Habitat

- Although light- to moderate- intensity prescribed fire will result in short-term adverse effects to water quality the Chitty Restoration Project is likely to retain PCEs within East Eagle and Eagle creeks.
- The overall health of the action area will be improved with this progressive restoration action.

The conclusions of this BO are based on full implementation of the project as described in the Description of the Proposed Action section of this document, including any Conservation Measures that were incorporated into the project design.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined (50 CFR 17.3) to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. "Harass" is defined (50 CFR 17.3) as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. "Incidental take" is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the ASNF so that they become binding conditions of any grant or permit issued to the ASNF, as appropriate, for the exemption in section 7(o)(2) to apply. The ASNF has a continuing duty to regulate the activity covered by this incidental take statement. If the ASNF (1) fails to assume and implement the terms and conditions or (2) fails to require the (applicant) to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the ASNF must report the progress of the action and its impact on the species to the FWS as specified in the incidental take statement. [50 CFR §402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE

The FWS anticipates that (one adult) MSO associated with the Blue Vista PAC is reasonably certain to be taken as a result of prescribed burning throughout restricted habitat outside of the PAC. The FWS believes prescribed burning throughout restricted habitat outside of the PAC will result in the temporary loss of key habitat components including snags, large logs, canopy cover, and residual plant cover, resulting in habitat degradation that is likely to result in less habitat available to provide the microclimate and physical habitat characteristics (snags, large logs, canopy cover) needed for foraging, dispersal, nesting, and roosting. Conservation measures are proposed to protect these habitat components where feasible but, depending on fire severity, these measures will not likely eliminate incidental take. The incidental take is expected to be in the form of harassment, which creates the likelihood that injury will result due to significant disruption of normal behavior patterns, and modified key habitat components. Although prescribed burns will only occur when climatic conditions allow for adequate smoke dispersal; short-term disturbance from smoke (during the MSO breeding season) is anticipated to result in incidental take to MSO.

The FWS will not refer the incidental take of any migratory bird or bald eagle for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-712), or the Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. §§ 668-668d), if such take is in compliance with the terms and conditions (including amount and/or number) specified herein.

EFFECT OF THE TAKE

In this BO, the FWS determines that this level of anticipated take is not likely to result in jeopardy to MSO. While the proposed action may adversely affect MSO in the short-term, the long-term ramifications of the project are expected to be beneficial through reducing the potential for catastrophic fire in PACs and critical habitat.

REASONABLE AND PRUDENT MEASURES AND TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, the ASNF must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

The following reasonable and prudent measures and terms and conditions are necessary and appropriate to minimize take of MSO:

1. The ASNF shall monitor incidental take resulting from the proposed action and report to the Arizona Ecological Services Office (AESO) the findings of that monitoring.
 - A. The ASNF will determine incidental take through monitoring of Blue Vista PAC, according to the current MSO survey protocol, when project treatments (including but not limited to treatments in Block A) are within or adjacent to the PAC over the life of the proposed project.
 - B. The ASNF shall submit annual monitoring reports to the AESO by January 1 following the first year of treatment. The report shall include results of MSO surveys, as well as any observations of MSO or notes about the effects of the action. The report shall also summarize the implementation of the proposed action.

Review requirement: The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take that might otherwise result from the proposed action. If, during the course of the action, the level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. ASNF must immediately provide an explanation of the causes of the taking and review with the AESO the need for possible modification of the reasonable and prudent measures.

Disposition of Dead or Injured Listed Species

Upon locating a dead, injured, or sick listed species initial notification must be made to the FWS's Law Enforcement Office, 2450 W. Broadway Rd, Suite 113, Mesa, Arizona, 85202, telephone: 480/967-7900) within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph if possible, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to this office. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve the biological material in the best possible state.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. We recommend the ASNF implement the potential research opportunities identified within the original BAE.
2. We recommend continuing prey base monitoring after project completion in order to understand the long-term implication of fuel reduction treatments.

3. We recommend monitoring the effects of fuels reduction treatments through systematic and standardized research designs within Blue Vista PAC.
4. We recommend the ASNF conduct surveys of Gila chub critical habitat within the action area and document the effects to water quality from prescribed burning operations.

In order for the FWS to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the FWS requests notification of the implementation of any conservation recommendations.

REINITIATION NOTICE

This concludes formal consultation on the actions outlined in the request. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

The FWS appreciates the ASNFs efforts to identify and minimize effects to listed species from this project. For further information please contact Ryan Gordon (x225) or Mary Richardson (x242). We also encourage the ASNF to coordinate this project with the Arizona Game and Fish Department. Please refer to the consultation number, 02-21-04-F-0006-R001, in future correspondence concerning this project.

Sincerely,

Steven L. Spangle
/s/ Field Supervisor

cc: District Ranger, Clifton Ranger District, Duncan, AZ
Forest Biologist, Clifton Ranger District, Duncan, AZ (Attn: Lance Brown)
Shaula Hedwall, Fish and Wildlife Service, Flagstaff, AZ

Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ

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APPENDIX A

Concurrence

Appendix A documents our concurrence with your determination of “may affect, is not likely to adversely affect” for the species listed below.

Chiricahua Leopard Frog (*Rana chiricahuensis*)

The Chiricahua leopard frog was listed as a threatened species without critical habitat on June 13, 2002 (USFWS 2002) and the recovery plan was completed in April 2007 (USFWS 2007). The last recorded occurrence of Chiricahua leopard frogs in the treatment area was in 1988, according to the Arizona Game and Fish Department Heritage Database Management System. This 1988 location was surveyed formally by trained personnel in 2004, and informally in 2003 and no frogs or tadpoles were found. Surveys were completed in 2003 for the length of Chitty Creek, resulting in no detections.

The FWS concurs with your determination that the proposed action may affect, but is not likely to adversely affect the Chiricahua leopard frog for the following reasons:

1. The last recorded occurrence of Chiricahua leopard frogs within the project area is >18 years old.
2. No additional known populations exist within dispersal distance (within one mile over land, three miles along an ephemeral or intermittent drainage, or five miles along a perennial stream) to suitable habitat within the project area.
3. Ignition will not occur within 200-500 feet of riparian corridors.
4. A 1,332 acre no-ignition area is designated along Chitty Canyon.
5. Burning will be conducted in such a manner as to create buffers of unburned areas around treated areas. This will mitigate potential sediment and ash movement.
6. According to ASNF personnel, there will be no long term loss in watershed soil conditions or significant change in present watershed soil conditions within the East Eagle Creek (in which the last known occurrence is located) sub-watershed as a result of this activity.

Gila Chub (*Gila intermedia*)

Gila chub occur within the action area and are documented (2004, Forest Service surveys) below the Honeymoon Campground. East Eagle Creek and the upper reaches of Eagle Creek above Honeymoon campground do not have the quality of pool habitat needed to sustain a population within these reaches.

The FWS concurs with your determination that the proposed action may affect, but is not likely to adversely affect the Gila chub for the following reasons:

1. According to ASNF personnel, the overall fire intensity of the treatment will not produce visible evidence of ash or sediment flow within the mainstem of Eagle Creek below Honeymoon campground;
2. Ignition will not occur within 200-500 feet of riparian corridors;
3. A 1,332 acre no-ignition area is designated along Chitty Canyon;
4. According to ASNF personnel, there will be no long term loss in watershed soil conditions or significant change in present watershed soil conditions within the East Eagle Creek sub-watershed as a result of this activity.

Mexican Gray Wolf (*Canis lupus baileyi*)

Mexican gray wolves were extirpated from the wild in the U.S. by private and government control campaigns, but were later listed as an endangered species in 1976. A recovery plan (USFWS 1982) was developed by the U.S. Fish and Wildlife Service in 1982 and wolves were reintroduced on the Apache National Forest in March 1998. Wolves have been released from the acclimation pen near Engineer Spring, approximately three miles east of the project area. Several packs (Saddle, Rim, and Bluestem) have been observed denning within and surrounding the action area. The ASNF will be in contact with the FWS personnel and the Arizona Game and Fish personnel working on the wolf recovery team to identify wolf den sites. If known den sites are within one mile of the burn area, firing operations and firefighter locations may be altered to provide a one-mile den buffer.

Based on information provided in the BAE, we concur with the ASNF determination that the proposed actions “are not likely to jeopardize” the Mexican gray wolf. We base this determination on the following:

1. Because of the wolves’ status as an experimental, non-essential population, wolves found in Arizona are treated as though they are proposed for listing for section 7 consultation purposes. By definition, an experimental non-essential population is not essential to the continued existence of the species. Thus, no proposed action impacting a population so designated could lead to a jeopardy determination for the entire species.

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